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THE

PROVIDENT LIFE AND TRUST COMPANY

OF PHILADELPHIA,

409 Chestnut Street,

PHILADELPHIA, June 10, 1886.

We take pleasure in handing you by this enclosure a tabulated statement of the Mortality Experience of this Company as compared with that of the various tables upon which Actuarial computations have been made. The facts contained in it we believe to be of unusual interest. We also think it possesses more than a mere temporary value, and that you will be glad to file it for reference.

Respectfully yours,

SAMUEL R. SHIPLEY,

President.

Insurance
Demography

Mortality Experience

of the

Provident Life & Trust Company

of

Philadelphia.

1866 to 1885.

Prepared by

ASA S. WING,

Vice-President and Actuary of the Company.

Published by the Company,

1886.

THE

PROVIDENT

LIFE AND TRUST COMPANY

OF

PHILADELPHIA.

22546.

OFFICE:

No. 409 Chestnut Street,

Philadelphia, Pa.

SAMUEL R. SHIPLEY, President.
T. WISTAR BROWN, Vice-President.
ASA S. WING, Vice-President and Actuary.
JOSEPH ASHBROOK, Manager of Insurance Department.
J. ROBERTS FOULKE, Trust Officer.

DR. THOMAS WISTAR, Chief Medical Examiner.
JOS. B. TOWNSEND, SAMUEL DICKSON, Legal Advisers.

DIRECTORS.

SAMUEL R. SHIPLEY, Philadelphia.	ISRAEL MORRIS, Philadelphia.
T. WISTAR BROWN, "	CHAS. HARTSHORNE, "
HENRY HAINES, "	WILLIAM GUMMERE, "
RICHARD CADBURY, "	FREDERIC COLLINS, "
RICHARD WOOD, "	MURRAY SHIPLEY, Cincinnati, Ohio.
WILLIAM HACKER, "	ASA S. WING, Philadelphia.
J. MORTON ALBERTSON, Norristown.	PHILIP C. GARRETT, Philadelphia.

JUSTUS C. STRAWBRIDGE, Philadelphia.

MORTALITY EXPERIENCE.

In 1879 this Company published, in connection with its Fourteenth Annual Report, an exhibit of its mortality experience to the close of 1877. That exhibit showed that the actual number of Policies terminated by death had been but $64\frac{7}{10}\%$ of the number expected by the American Table of Mortality, and that the actual amount of the Policies so terminated was but $65\frac{6}{10}\%$ of the probable amount by the same table. No such favorable Mortality experience has been published of any other Life Insurance Company in this Country. The late Elizur Wright said of it: "The mortuary experience of your Company, from 1866 to 1877 inclusive, submitted to me for my opinion, is a very remarkable and interesting document. That in an aggregate exposure, in the course of twelve years, of 46,539 years of life, between the ages of 11 and 76 inclusive, there should have been only 331 deaths, when by the Table of lowest Mortality in use for Life Insurance 511 deaths were to be expected, is not perhaps wholly unprecedented but very uncommon. It indicates that either the selection of lives has been careful and judicious, or that the business has been sought chiefly among people of peculiarly good sanitary habits. I am inclined to think both causes have operated."

The limited space of twelve years through which that experience ran, and the comparatively small number of lives exposed, were the only factors in that exhibit which could take from its value as a safe comparison of the mortality experience of The Provident Life and Trust Company of Philadelphia with the published tables of mortality and with the experience of other Companies. The officers of the Company now present to its Policy holders an exhibit scarcely less favorable, with these possibly doubtful factors eliminated, showing the mortality experience of the Company to the close of 1885. It covers a period of 20 years, with 124,526 years of life and an amount of $380,334,659$\frac{00}{100}$ exposed to risk in place of 46,539 years of life and $136,730,437$\frac{50}{100}$ as shown in the former exhibit. This experience covers a longer period and a larger number of exposures to risk than the experience upon which the American Experience Table of Mortality was constructed by Sheppard Homans in 1858. That these observations were sufficiently numerous and that the American Table is a fair exhibit of the general mortality of assured lives in this Country, is confirmed by the mortality experience of 30 American Companies collected by L. W. Meech and published in 1881. A comparison of the near relation these two mortality tables bear to each other for each age is given in Table XVIII and more strikingly illustrated in Chart J.

The accompanying explanations should be read in connection with the Tables and Charts submitted herewith.

TABLE I.

In the observations made for this and other Tables no account is taken of "Not Taken" Policies or those which lapsed in the calendar year of issue. Every policy (whether there be one or more upon the same life) issued and remaining in force at the end of the calendar year of issue is included in the exposures, and in the column of deaths the number of Policies terminated thereby is given without regard to the number of persons insured. These remarks apply as well to Tables III, V, VII and VIII. But in some of the other tables it will be noticed that observations are made upon *lives* rather than upon *policies*.

This table gives the probable and actual experience for each calendar year from 1866 to 1885 both inclusive. There were a few policies issued in the last half of 1865, but as they were so few and as there were no deaths in that year it was thought best to consider them as in force at the beginning of 1866, and no credit is taken in the exposures for the time they were in force in 1865.

TABLE I.

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF POLICIES TERMINATED BY DEATH. FOR EACH YEAR.

Year.	Average Number of Policies Exposed.	*Probable* Number to be terminated by death by the American Experience Table.	*Actual* Number Terminated.	Ratio of Actual to Probable.	Year.
1866	301.5	3.040	4	1.316	1866
1867	882.5	8.902	5	.562	1867
1868	1,598.5	16.379	8	.488	1868
1869	2,262.5	23.717	14	.590	1869
1870	2,904.0	30.816	22	.714	1870
1871	3,644.0	39.098	30	.767	1871
1872	4,364.5	47.165	39	.827	1872
1873	5,103.5	55.613	36	.647	1873
1874	5,768.0	63.377	45	.710	1874
1875	6,237.0	69.273	32	.462	1875
1876	6,653.0	75.366	47	.623	1876

(*Continued on next page.*)

TABLE I.—(*Continued.*)

Year.	Average Number of Policies Exposed.	*Probable* Number to be terminated by death by the American Experience Table.	*Actual* Number Terminated.	Ratio of Actual to Probable.	Year.
1877	6,820.0	78.777	49	.622	1877
1878	6,865.0	81 214	62	.763	1878
1879	7,153.5	86.256	60	.696	1879
1880	7,822.0	95.429	65	.681	1880
1881	8,754.5	107.472	74	.689	1881
1882	9,838.5	121.011	97	.802	1882
1883	11,113.5	136.964	90	.657	1883
1884	12,513.0	153.780	90	.585	1884
1885	13,927.0	171.274	106	.619	1885
Total.	124,526.0	1464.923	975	.666	Total.

TABLE II.

This table represents in Dollars what Table I shows in Policies, and gives the gross expected loss as compared with the amount of Insurance terminated by death. For comparison, the result as thus arrived at is a fair one, but it must not be assumed that there was a gain to the company of the difference between $4,492,750, the probable loss, and $3,085,551, the actual loss; for, strictly speaking, the amount exposed to risk is the face of the Policy less the reserve or accumulation thereon, and the real loss in case of death is the amount of the Policy less the reserve on it. If the computation had been made on that basis it would have shown a reduction in the probable and actual losses, but their relation to each other would not have differed materially from the ratio as shown in this table.

No account is taken in the exposures or actual deaths of reversionary additions. They are small in amount and are accounted for in the Company's yearly computations of its gains on Vitality, but were not considered of sufficient importance to include in the present comparative statement.

TABLE II.

COMPARISON OF THE ACTUAL AND PROBABLE AMOUNT OF INSURANCE TERMINATED BY DEATH, FOR EACH YEAR.

Year.	Average Amount Exposed.	*Probable* Amount to be terminated by death by the American Experience Table.	*Actual* Amount Terminated.	Ratio of Actual to Probable.	Year.
1866	$1,093,450.00	$10,787.820	$13,000	1.205	1866
1867	2,873,650.00	28,934.682	16,500	.570	1867
1868	4,919,720.00	50,958.913	19,000	.373	1868
1869	6,802,452.50	72,230.246	48,500	.671	1869
1870	8,508,171.00	91,559.301	58,950	.644	1870
1871	10,313,192.50	112,685.259	82,714	.734	1871
1872	11,926,753.50	131,827.877	107,250	.813	1872
1873	14,093,989.00	156,612.871	90,355	.577	1873
1874	16,665,013.00	185,473.007	123,631	.667	1874
1875	18,591,088.00	207,795.466	111,300	.536	1875
1876	20,154,050.00	229,036.722	134,406	.587	1876

(*Continued on next page.*

TABLE II.—(*Continued.*)

Year.	Average Amount Exposed.	*Probable* Amount to be terminated by death by the American Experience Table.	*Actual* Amount Terminated.	Ratio of Actual to Probable.	Year.
1877	$20,788,908.00	$240,006.730	$190,553	.794	1877
1878	20,873,060.00	246,088.845	206,833	.844	1878
1879	21,766,126.50	261,419.274	213,987	.818	1879
1880	24,135,891.50	292,798.402	197,929	.676	1880
1881	27,447,181.00	335,852.209	232,230	.691	1881
1882	30,984,997.00	379,748.243	324,739	.855	1882
1883	35,144,032.00	431,736.987	278,642	.645	1883
1884	39,604,007.00	486,741.074	323,176	.664	1884
1885	43,648,926.50	540,456.274	311,856	.577	1885
Total,	$380,334,659.00	**$4,492,750.202**	**$3,085,551**	.687	Total.

TABLE III.

This table gives the experience for each age, showing the number of Policies actually terminated by death and the number expected to be terminated by the American Experience Table. The total result is of course the same as in Table I. The facts are graphically shown in Chart A, where the probable or expected deaths appear in the line at the outside limit of the blue color and the inside limit of the red, and the actual deaths are represented by the irregular lines bounding the buff, and the outside limit of the red.

TABLE III.—(*See Chart A.*)

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF POLICIES TERMINATED BY DEATH. FOR EACH AGE.

Age at Exposure.	Average Number of Policies Exposed.	*Probable* Number to be terminated by death by the American Experience Table.	*Actual* Number terminated.	Age at Exposure.
11	.5	.004		11
12	1.0	.008		12
13	2.0	.015		13
14	4.5	.034		14
15	11.0	.084		15
16	25.5	.195	2	16
17	43.0	.331		17
18	82.5	.637		18
19	157.5	1.223	1	19
20	317.5	2.478	2	20
21	581.5	4.568	5	21
22	936.5	7.404	9	22
23	1344.5	10.700	8	23
24	1781.0	14.268	11	24
25	2225.0	17.945	7	25
26	2727.5	22.175	9	26
27	3112.0	25.509	16	27
28	3499.0	28.916	15	28
29	3852.5	32.149	24	29
30	4119.0	34.711	16	30
31	4400.5	37.448	22	31
32	4607.5	39.657	19	32
33	4793.5	41.790	29	33
34	4876.0	43.060	21	34
35	4914.0	43.961	17	35
36	4911.0	44.636	36	36
37	4882.0	45.080	23	37
38	4743.5	44.627	31	38
39	4637.5	44.455	27	39
40	4496.0	44.034	31	40
41	4310.5	43.139	39	41
42	4038.0	41.398	29	42
43	3800.5	39.970	28	43
44	3563.5	38.589	28	44
45	3396.5	37.915	29	45

(*Continued on next page.*)

TABLE III.—(*Continued.*)

Age at Exposure.	Average Number of Policies Exposed.	*Probable* Number to be terminated by death by the American Experience Table.	*Actual* Number terminated.	Age at Exposure.
46	3156.5	36.495	33	46
47	2995.0	35.940	21	47
48	2819.0	35.263	10	48
49	2622.0	34.364	28	49
50	2410.5	33.219	30	50
51	2199.0	31.976	14	51
52	2035.0	31.317	19	52
53	1923.0	31.408	29	53
54	1779.5	30.956	31	54
55	1620.0	30.085	22	55
56	1404.5	27.928	27	56
57	1261.0	26.903	15	57
58	1122.0	25.734	11	58
59	1004.0	24.819	14	59
60	861.5	22.996	12	60
61	733.5	21.183	13	61
62	646.5	20.230	8	62
63	553.0	18.770	17	63
64	465.0	17.146	14	64
65	370.0	14.848	9	65
66	290.0	12.675	13	66
67	240.5	11.459	10	67
68	199.0	10.348	9	68
69	154.5	8.770	5	69
70	118.0	7.315	3	70
71	90.5	6.124	5	71
72	68.0	5.014	5	72
73	51.0	4.089	1	73
74	45.0	3.916	2	74
75	33.5	3.161	7	75
76	18.0	1.842	1	76
77	15.0	1.666	2	77
78	11.0	1.329		78
79	8.5	1.120		79
80	4.0	.578		80
81	3.0	.476		81
82	2.0	.348	1	82
Total,	124,526.0	1464.923	975	Total.

CHART A. (See Table III.)

Comparison of the Actual Number of Policies terminated by death, with the Probable Number by the American Experience Table. For Each Age.

Note the Ages at Foot of the table.

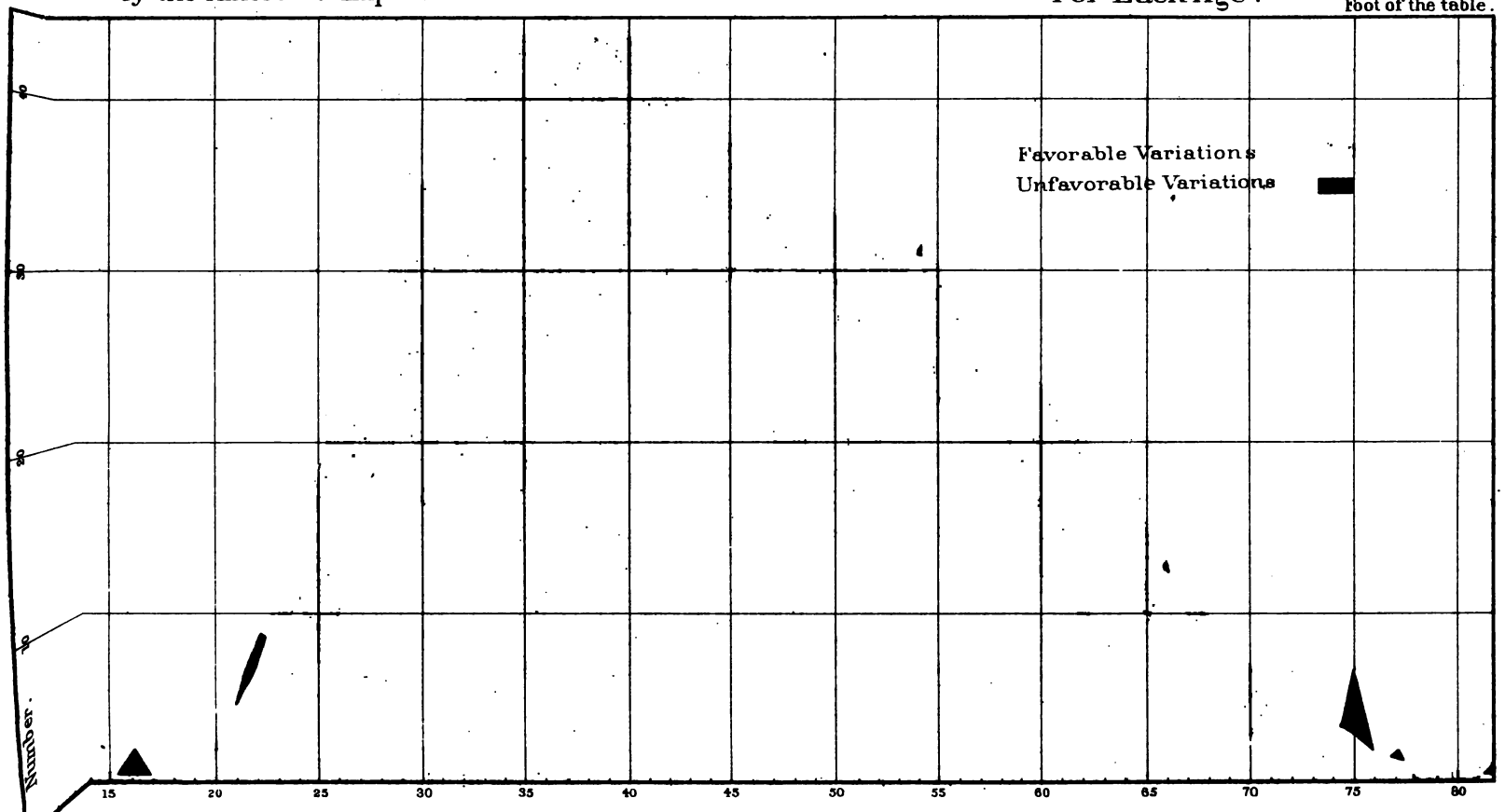

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TABLE IV.

This Table and Chart B, show the corresponding facts as to probable and actual amount of loss in dollars that Table III and Chart A show for the number of Policies.

TABLE IV.—(*See Chart B.*)

COMPARISON OF THE ACTUAL AND PROBABLE AMOUNT TERMINATED BY DEATH, FOR EACH AGE.

Age at Exposure.	Average Amount Exposed.	*Probable* Amount to be terminated by death by American Experience Table.	*Actual* Amount terminated.	Age at Exposure.
11	$500.00	$3.758		11
12	1,000.00	7.543		12
13	2,000.00	15.138		13
14	9,000.00	68.364		14
15	29,500.00	225.203		15
16	60,159.00	460.878	$2,000	16
17	95,818.00	736.649		17
18	171,715.50	1,326.845		18
19	337,800.50	2,623.021	1,000	19
20	766,208.50	5,980.257	2,000	20
21	1,468,342.00	11,533.826	11,500	21
22	2,489,056.00	19,678.477	30,500	22
23	3,740,555.00	29,767.337	26,564	23
24	5,158,270.00	41,322.901	38,000	24
25	6,465,397.50	52,143.431	16,500	25
26	7,877,458.00	64,043.734	34,000	26
27	9,016,183.50	73,905.656	57,000	27
28	10,224,900.50	84,498.576	46,450	28
29	11,319,048.00	94,457.455	67,995	29
30	12,214,991.00	102,935.729	39,525	30
31	13,018,046.50	110,783.575	70,161	31
32	13,692,640.50	117,852.557	65,573	32
33	14,506,122.50	126,464.375	113,670	33
34	14,909,175.00	131,662.924	70,300	34
35	14,934,384.00	133,602.999	66,691	35
36	14,950,803.00	135,887.848	88,008	36
37	14,841,648.50	137,047.782	69,437	37
38	14,484,742.00	136,272.452	102,012	38
39	14,215,676.00	136,271.469	76,243	39
40	13,745,609.00	134,624.494	96,519	40
41	13,163,724.50	131,742.554	81,110	41
42	12,411,245.50	127,240.085	87,783	42
43	11,793,291.00	124.030.038	112,429	43
44	11,047,286.50	119,631.064	91,796	44
45	10,836,591.50	120,968.870	88,665	45

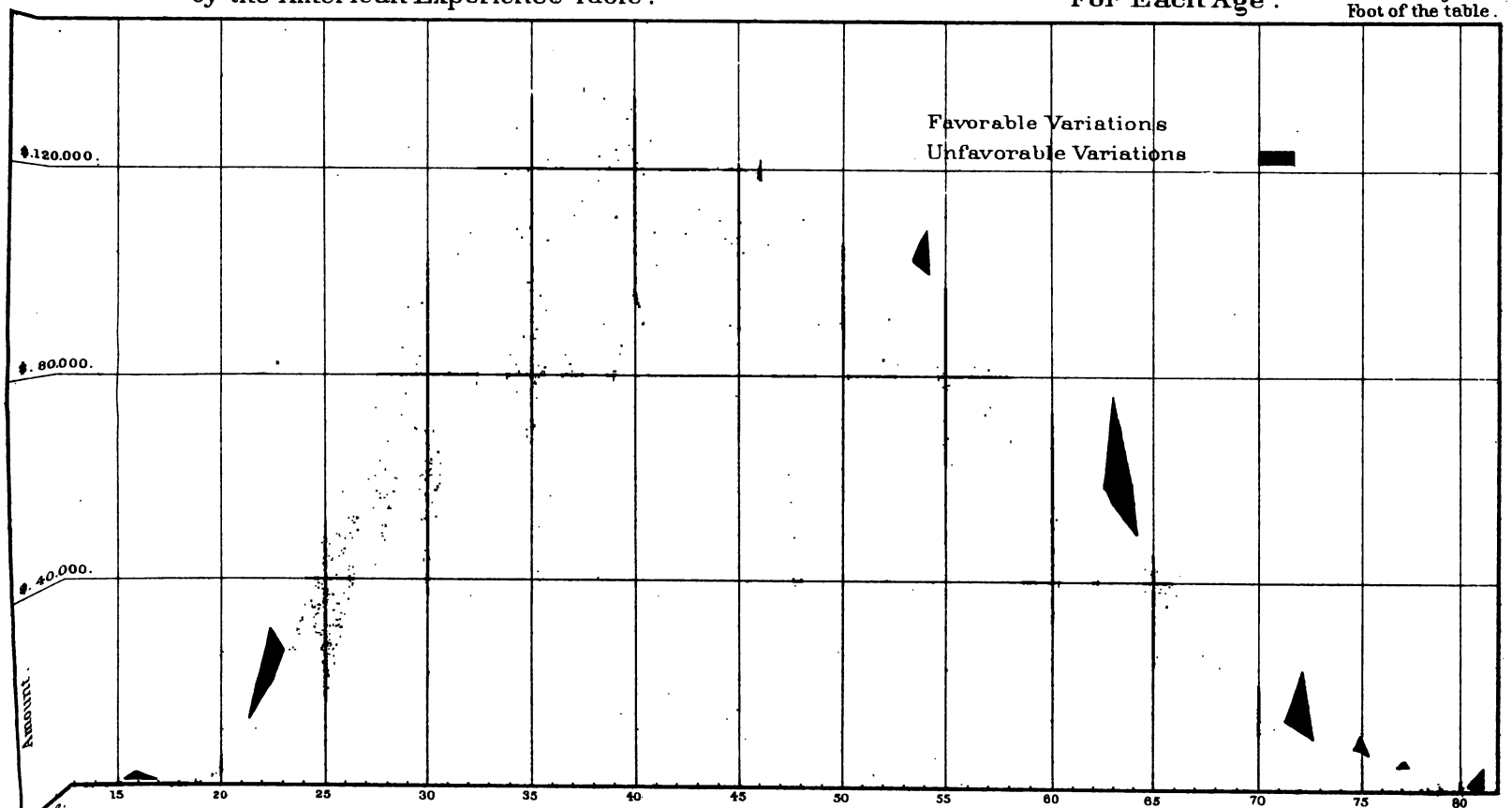
TABLE IV.—(*Continued.*)

Age at Exposure.	Average Amount Exposed.	*Probable* Amount to be terminated by death by American Experience Table.	*Actual* Amount terminated.	Age at Exposure.
46	$10,162,763.00	$117,501.866	$121,300	46
47	9,694,821.00	116,337.852	49,303	47
48	9,119,211.00	114,072.210	36,000	48
49	8,461,864.00	110,901.189	85,707	49
50	7,690,299.00	105,980.010	90,285	50
51	7,018,502.00	102,056.038	50,091	51
52	6,618,427.00	101,850.972	59,885	52
53	6,357,090.00	103,830.351	99,930	53
54	5,798,261.50	100,866.556	110,978	54
55	5,281,717.00	98,086.766	62,128	55
56	4,568,246.50	90,839.581	65,833	56
57	3,965,561.00	84,605.244	65,750	57
58	3,501,654.00	80,313.936	54,441	58
59	3,156,063.00	78,017.877	35,253	59
60	2,676,702.50	71,449.219	33,000	60
61	2,256,802.00	65,176.442	51,931	61
62	1,957,540.00	61,255.342	37,837	62
63	1 669,877.50	56,680.651	77,480	63
64	1,375,577.00	50,721.650	59,640	64
65	1,106,102.00	44,386.767	22,535	65
66	888,157.50	38,818.700	38,240	66
67	750,004.00	35,735.441	24,500	67
68	589,857.00	30,673.744	18,500	68
69	419,299.50	23,800.278	8,821	69
70	332,710.00	20,625.691	11,020	70
71	234,037.00	15,714.317	11,800	71
72	175,062.00	13,040.565	25,000	72
73	127,397.00	10,214.437	1,000	73
74	115,195.00	10,025.190	1,282	74
75	91,965.00	8,678.829	11,650	75
76	50,915.00	5,209.165	2,000	76
77	45,915.00	5,099 504	6,000	77
78	33,835.00	4,088.182		78
79	24,335.00	3,205.747		79
80	10,835.00	1,565.289		80
81	5,835.00	925.460		81
82	3,335.00	581.280	3,000	82
Total,	$380,334,659.00	$4,492,750.202	$3,085,551	Total.

CHART B. (See Table IV).

Comparison of the Actual Amount terminated by death, with the Probable Amount by the American Experience Table. For Each Age.

Note the Ages at Foot of the table.



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TABLES V and VI.

In the Charts A and B, casual observers will probably be struck with the irregularity of the actual line of death loss as compared with the probable. Tables V and VI and Charts C and D are prepared to smooth out those irregularities and to show the experience in groups of five ages instead of for each age. This gives an opportunity for an average, and on the Charts the actual line presents a more regular appearance and falls within the probable line in all but one unimportant group.

TABLE V.—(*See Chart C.*)

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF POLICIES TERMINATED BY DEATH. IN GROUPS OF FIVE AGES.

Ages.	Average Number of Policies Exposed.	*Probable* Number to be terminated by death by the American Experience Table.	*Actual* Number Terminated.	Ratio of Actual to Probable.	Ages.
11 to 15	19.0	.145	0		11 to 15
16 to 20	626.0	4.864	5	1.028	16 to 20
21 to 25	6,868.5	54.885	40	.729	21 to 25
26 to 30	17,310.0	143.460	80	.557	26 to 30
31 to 35	23,591.5	205.916	108	.529	31 to 35
36 to 40	23,670.0	222.832	148	.664	36 to 40
41 to 45	19,109.0	201.011	153	.761	41 to 45
46 to 50	14,003.0	175.281	122	.696	46 to 50
51 to 55	9,556.5	155.742	115	.739	51 to 55
56 to 60	5,653.0	128.380	79	.615	56 to 60
61 to 65	2,768.0	92.177	61	.661	61 to 65
66 to 70	1,002.0	50.567	40	.790	66 to 70
71 to 75	288.0	22.304	20	.897	71 to 75
76 to 82	61.5	7.359	4	.543	76 to 82
Total,	124,526.0	1,464.923	975	.666	Total.

TABLE VI.—(*See Chart D.*)

COMPARISON OF THE ACTUAL AND PROBABLE AMOUNT OF INSURANCE TERMINATED BY DEATH.

IN GROUPS OF FIVE AGES.

Ages.	Average Amount Exposed.	*Probable* Amount to be terminated by death by the American Experience Table.	*Actual* Amount Terminated.	Ratio of Actual to Probable.	Ages.
11 to 15	$42,000.00	$320.006			11 to 15
16 to 20	1,431,701.50	11,127.650	$5,000	.449	16 to 20
21 to 25	19,321,620.50	154,445.972	123,064	.796	21 to 25
26 to 30	50,652,581.00	419,841.150	244,970	.583	26 to 30
31 to 35	71,060,368.50	620,366.430	386,395	.623	31 to 35
36 to 40	72,238,478.50	680,104.045	432,219	.635	36 to 40
41 to 45	59,252,139.00	623,612.611	461,783	.741	41 to 45
46 to 50	45,128,958.00	564,793.127	382,595	.677	46 to 50
51 to 55	31,073,997.50	506,690.683	383,012	.756	51 to 55
56 to 60	17,868,227.00	405,225.857	254,277	.627	56 to 60
61 to 65	8,365,898.50	278,220.852	249,423	.896	61 to 65
66 to 70	2,980,028.00	149,653.854	101,081	.675	66 to 70
71 to 75	743,656.00	57,673.338	50,732	.880	71 to 75
76 to 82	175,005.00	20,674.627	11,000	.532	76 to 82
Total,	$380,334,659.00	**$4,492,750.202**	**$3,085,551**	.687	Total.

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CHART C. (See Table V).

Comparison of the Actual Number of Policies terminated by death, with the Probable Number by the American Experience Table. In Groups of Five Ages.

Note the Ages at Foot of the table.

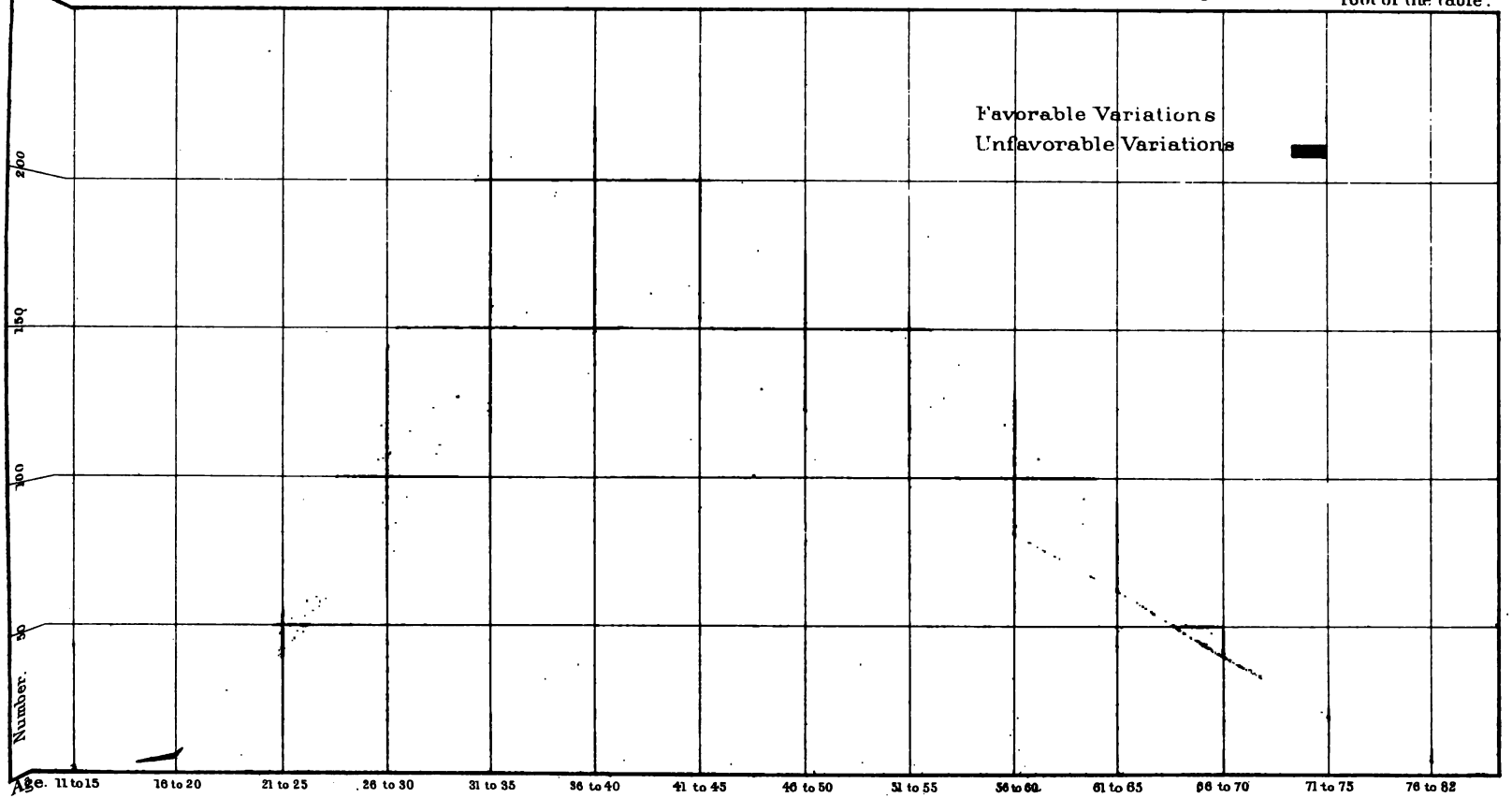

CHART D. (See Table VI.)

Comparison of the Actual Amount terminated by death, with the Probable Amount by the American Experience Table. In Groups of Five Ages.

Note the Ages at Foot of the table.

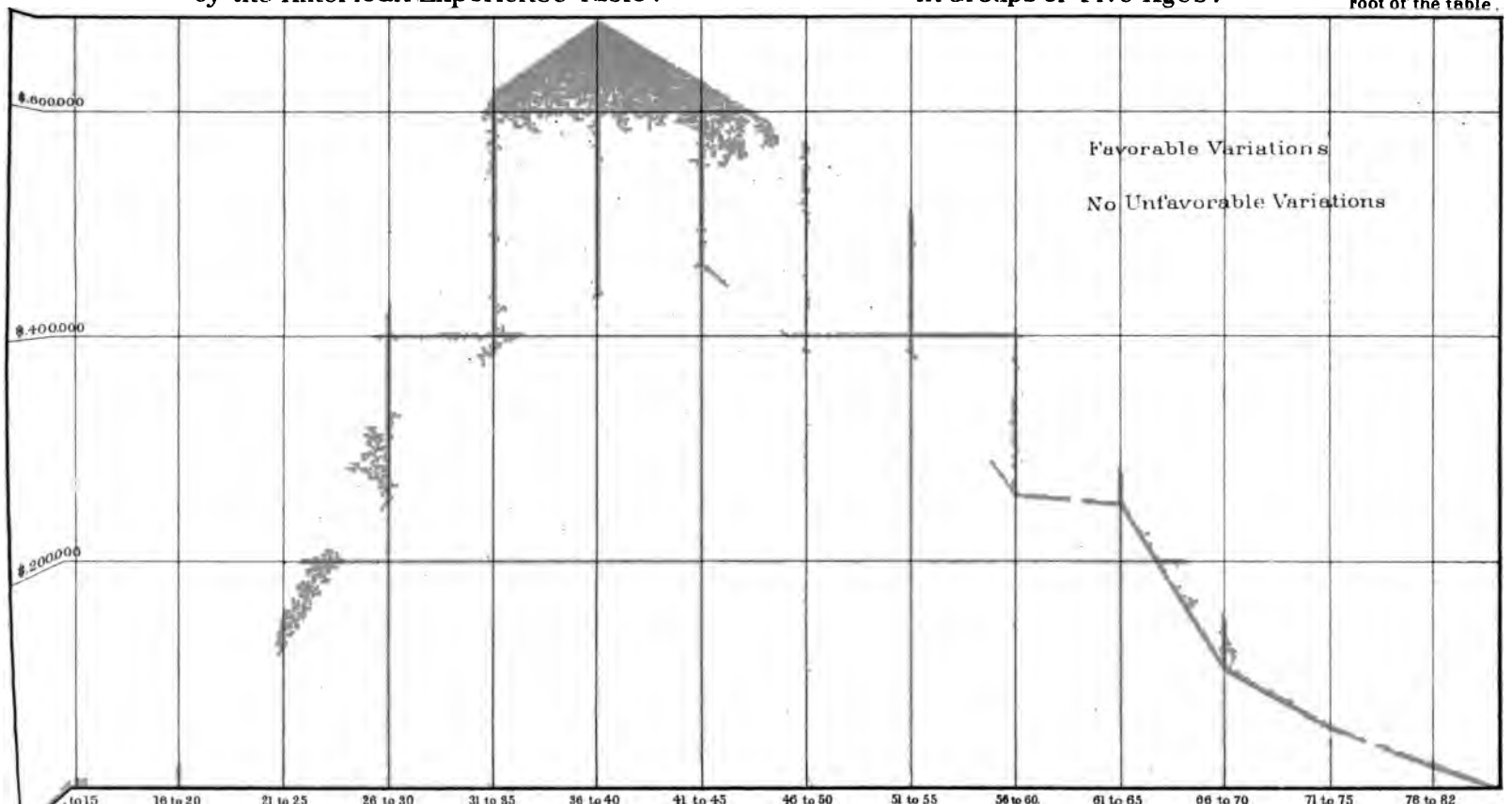

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TABLE VII.

In this table the Policies are arranged so that observations can be made upon them according to the length of time they have been in force. It will be seen that in the year of entrance the actual deaths are but $35\frac{7}{10}\%$ of the probable, and that there is a regular increase in this percentage until the third year, after which the ratios are more even. The figures will probably be better appreciated by reference to Chart E, where the red line represents the expected mortality and the black line the actual, or perhaps it is still more plainly shown in Chart F where the red line is made to represent the basis of 100% by the American Table and the black line shows the percentage which the actual deaths bear to it. Care should be taken however in Chart F to compare it with Chart E, especially in the striking case of the 19th year, where Chart F would seem to show that there was a very large excess in the actual result over the expected, but a reference to Table VII will show that it is only a difference of 3 policies, or a glance at Chart E will discover the very small space between the expected and actual. To those familiar with such diagrams, this explanation is uncalled for, but casual observers should bear in mind in this and other charts that such irregularities are likely to occur when there are too few observations or exposures to produce an average.

TABLE VII.—(*See Charts E and F.*)

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF POLICIES TERMINATED BY DEATH. FOR EACH YEAR OF EXPOSURE.

Year.	Average Number of Policies Exposed.	*Probable* Number to be terminated by death by the American Experience Table.	*Actual* Number terminated.	Ratio of Actual to Probable.	Year.
0	12,272.0	120.389	43	.357	0
1	20,724.0	209.670	103	.491	1
2	16,419.0	171.878	101	.588	2
3	13,379.5	144.993	112	.772	3
4	11,050.5	123.990	98	.790	4
5	9,204.5	107.384	85	.792	5
6	7,626.0	92.165	67	.727	6
7	6,405.0	80.794	71	.879	7
8	5,526.5	72.255	40	.554	8
9	4,797.5	65.368	54	.826	9
10	4,039.5	57.691	46	.797	10

(*Continued on next page.*)

TABLE VII.—(*Continued.*)

Year.	Average Number of Policies Exposed.	*Probable* Number to be terminated by death by the American Experience Table.	*Actual* Number terminated.	Ratio of Actual to Probable.	Year.
11	3,330.0	49.252	32	.650	11
12	2,695.5	42.470	33	.777	12
13	2,084.0	34.622	24	.693	13
14	1,660.5	28.959	21	.725	14
15	1,227.0	22.560	14	.621	15
16	908.5	17.225	11	.639	16
17	621.0	12.280	8	.651	17
18	372.5	7.413	6	.809	18
19	158.0	3.081	6	1.947	19
20	25.0	.484	0	.0	20
Total,	124,526.0	1464.923	975	.666	Total.

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N.Y.

CHART E. (See Table VII.)

Comparison of the **Actual** and **Probable** Number of Policies terminated by death. For Each Year of Exposure.

Probable Number by American Table; - Red Line. Actual Number; - Black Line.

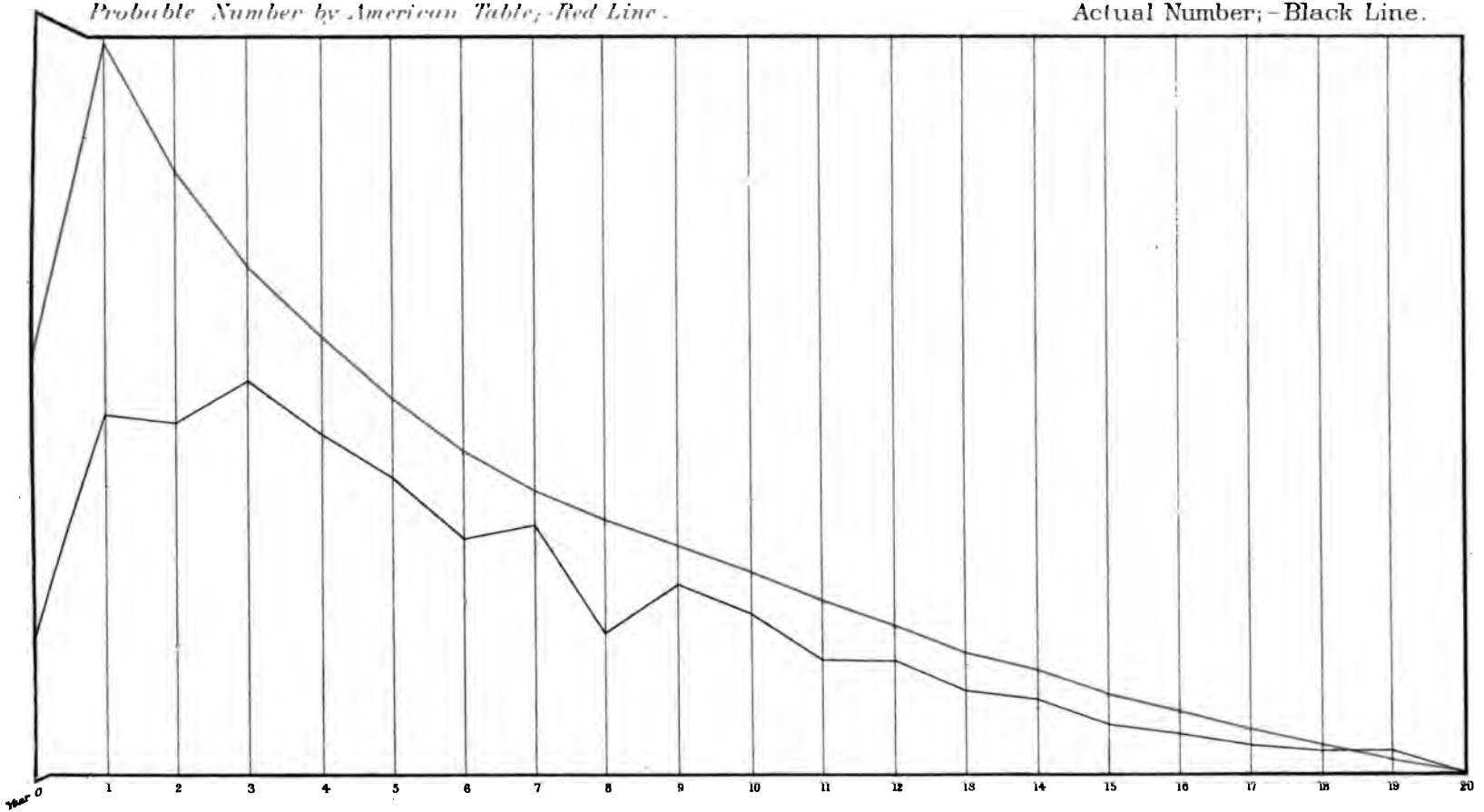

CHART F. (See Table VII.)

Showing the Percentage of Actual Number of Policies terminated by death to the Probable Number by the American Table (100% ——) For Each Year of Exposure.

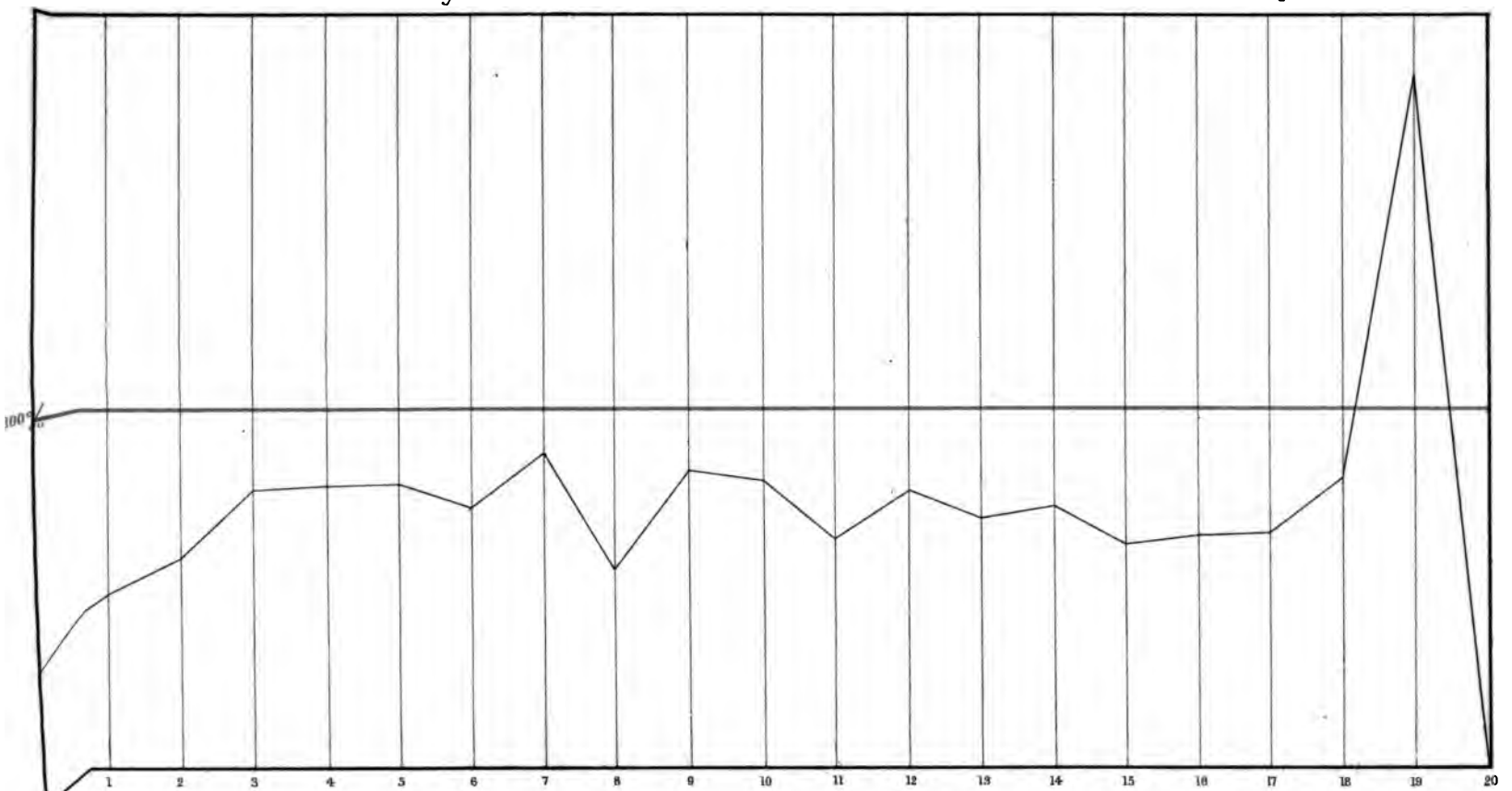

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TABLE VIII.

In all the preceding tables the American Table of Mortality has been the basis for comparison, but in this the Combined Experience Table is substituted. This Mortality Table is used in many of the States as the standard for valuation of policies, notably when the reserves are calculated with interest at 4%. It is designated by the several names: Combined Experience, Old Actuaries', or 17 British Offices Table. By a Comparison of the expected deaths with the actual it will be seen that in the youngest and oldest ages the ratio of actual deaths is larger, than is shown in Table V by the American Table, but that in the medium ages where most of the exposures occur the ratio of actual deaths is smaller, and that in the total result the actual deaths are but $61\frac{9}{10}\%$ of the probable deaths by the Combined Experience Table, instead of $66\frac{6}{10}\%$ as shown in Table V by the American Experience Table.

TABLE VIII.—(*See Chart G.*)

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF POLICIES TERMINATED BY DEATH. IN GROUPS OF FIVE AGES.

BY THE "COMBINED EXPERIENCE," OR OLD "ACTUARIES'" TABLE.

Ages.	Average Number of Policies Exposed.	Probable Number to be terminated by death by the Combined Experience Table.	Actual Number terminated.	Ratio of Actual to Probable.	Ages.
11 to 15	19.0	.131	0	.0	11 to 15
16 to 20	626.0	4.520	5	1.106	16 to 20
21 to 25	6,868.5	52.391	40	.763	21 to 25
26 to 30	17,310.0	141.487	80	.565	26 to 30
31 to 35	23,591.5	210.792	108	.512	31 to 35
36 to 40	23,670.0	234.412	148	.631	36 to 40
41 to 45	19,109.0	215.677	153	.709	41 to 45
46 to 50	14,003.0	199.116	122	.613	46 to 50
51 to 55	9,556.5	181.639	115	.633	51 to 55
56 to 60	5,653.0	147.700	79	.535	56 to 60
61 to 65	2,768.0	102.846	61	.593	61 to 65
66 to 70	1,002.0	54.203	40	.738	66 to 70
71 to 75	288.0	22.868	20	.875	71 to 75
76 to 82	61.5	7.302	4	.548	76 to 82
Total,	124,526.0	1,575.084	975	.619	Total.

TABLE IX.

In this is presented a comparison of the actual amount of Insurance terminated by death, with the probable amount by the Combined Experience Table in groups of five ages. If this table is compared with Table VI it will be seen that by the Combined Experience Table the actual loss was but $63\frac{7}{10}$ % of the probable, and that by the American Experience Table it was $68\frac{7}{10}$ %. Tables VIII and IX are illustrated by Chart G, which shows the percentages which the actual number and amount terminated by death bear to the expected number and amount by the Combined Experience Table.

This Chart is also interesting as showing how nearly parallel the experience runs on the number of Policies, and the amount of Insurance.

TABLE IX.—(*See Chart G.*)

COMPARISON OF THE ACTUAL AND PROBABLE AMOUNT OF INSURANCE TERMINATED BY DEATH, IN GROUPS OF FIVE AGES, BY THE "COMBINED EXPERIENCE," OR "OLD ACTUARIES'" TABLE.

Ages.	Average Amount Exposed.	Probable Amount to be terminated by death by the Combined Experience Table.	Actual Amount terminated.	Ratio of Actual to Probable.	Ages.
11 to 15	$42,000.00	$290.813	0	0	11 to 15
16 to 20	1,431,701.50	10,343.594	$5,000	.483	16 to 20
21 to 25	19,321,620.50	147,483.266	123,064	.834	21 to 25
26 to 30	50,652,581.00	414,109.960	244,970	.592	26 to 30
31 to 35	71,060,368.50	635,127.938	386,395	.608	31 to 35
36 to 40	72,238,478.50	715,516.275	432,219	.604	36 to 40
41 to 45	59,252,139.00	669,144.426	461,783	.689	41 to 45
46 to 50	45,128,958.00	641,574.659	382,595	.596	46 to 50
51 to 55	31,073,997.50	590,958.675	383,012	.650	51 to 55
56 to 60	17,868,227.00	466,255.746	254,277	.545	56 to 60
61 to 65	8,365,898.50	310,454.289	249,423	.804	61 to 65
66 to 70	2,980,028.00	160,506.487	101,081	.630	66 to 70
71 to 75	743,656.00	59,101.164	50,732	.858	71 to 75
76 to 82	175,005.00	20,560.990	11,000	.535	76 to 82
Total,	$380,334,659.00	**$4,841,428.282**	**$3,085,551**	.637	Total.

CHART G. (See Tables VIII and IX.)

Showing the Percentages which the **Actual Number of Policies** and the **Actual Amount** of Insurance, terminated by death, bear to the **Probable Number and Amount** by the **Combined Experience Mortality Table.** In Groups of Five Ages.

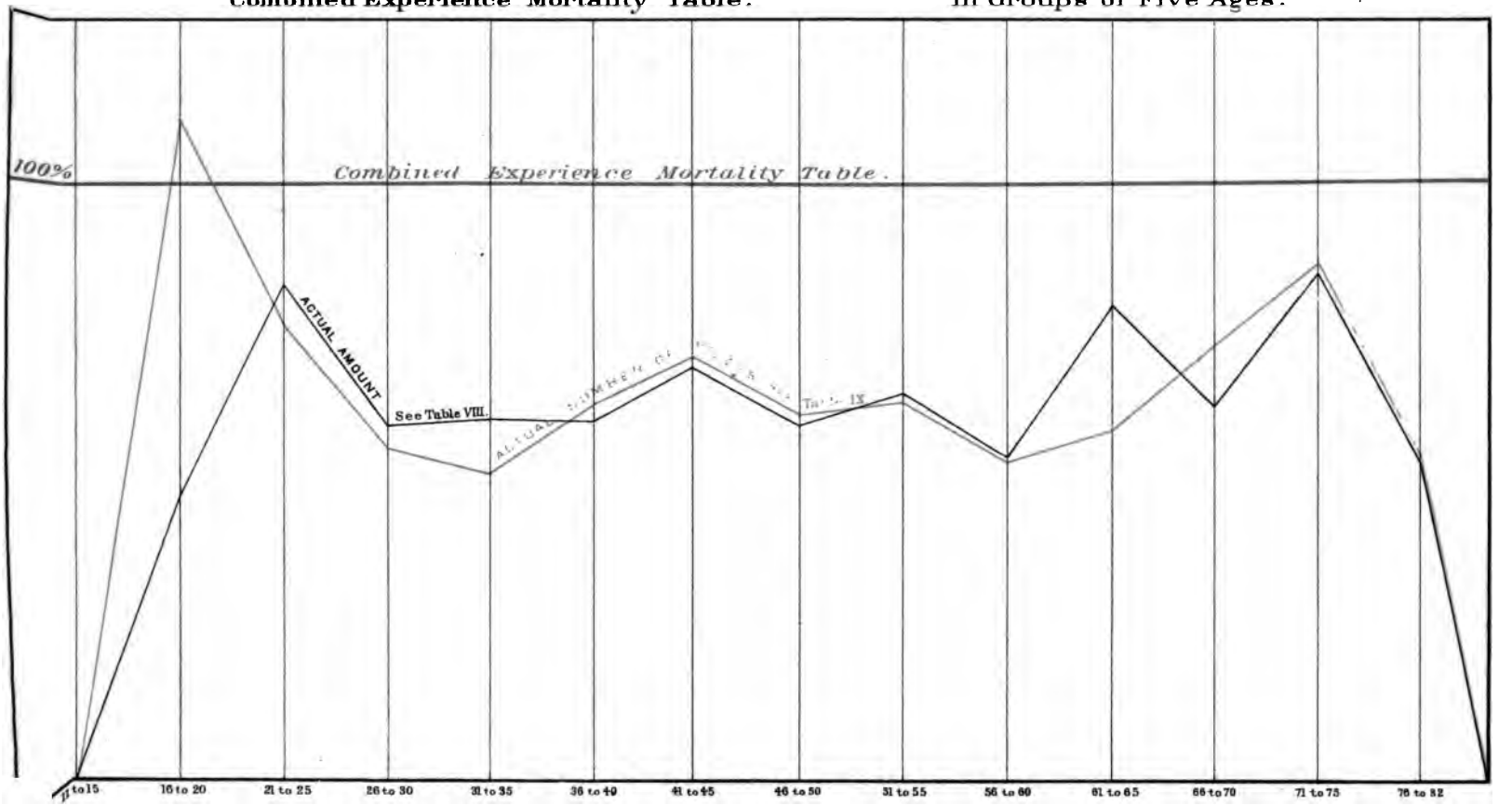

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TABLE X.

As heretofore explained the preceding tables so far as they relate to the *numbers* at risk or *numbers* of deaths represent policies, but the Tables which follow deal with *lives* rather than policies. The usual methods have been adopted for counting but *once* in the same year of exposure the same life, and the male and female lives have been separated. This Table represents the Experience of the Company on its male lives for each calendar year and corresponds to Table I as to policies.

TABLE X.

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF *MALE LIVES* TERMINATED BY DEATH. FOR EACH YEAR.

Year.	Average Number of Male Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Ratio of Actual to Probable.	Year.
1866	293.5	2.946	4	1.358	1866
1867	829.0	8.339	4	.480	1867
1868	1,471.5	15.023	7	.466	1868
1869	2,040.0	21.326	13	.610	1869
1870	2,559.0	27.230	18	.661	1870
1871	3,171.5	34.126	24	.703	1871
1872	3,783.5	40.954	33	.806	1872
1873	4,423.0	48.174	28	.581	1873
1874	4,993.0	54.822	37	.675	1874
1875	5,380.5	59.717	28	.469	1875
1876	5,742.0	65.016	37	.569	1876

(*Continued on next page.*)

TABLE X.—(*Continued.*)

Year.	Average Number of Male Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Ratio of Actual to Probable.	Year.
1877	5.896.5	68.098	41	.602	1877
1878	5.915.5	69.972	54	.772	1878
1879	6.070.5	73.315	46	.627	1879
1880	6.511.0	79.639	58	.728	1880
1881	7.193.5	88.548	61	.689	1881
1882	8.028.5	99.018	69	.697	1882
1883	9.043.0	111.731	71	.635	1883
1884	10.087.5	124.350	76	.611	1884
1885	11.155.5	137.426	87	.633	1885
Total,	104.588.0	1229.770	796	.647	Total.

TABLE XI.

In this table is shown the experience for each calendar year for female lives, corresponding to Table X for male lives.

TABLE XI.

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF *FEMALE LIVES* TERMINATED BY DEATH. FOR EACH YEAR.

Year.	Average Number of Female Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Ratio of Actual to Probable.	Year.
1866	6.5	.075	0	0	1866
1867	30.0	.309	1	3.236	1867
1868	68.5	.730	1	1.370	1868
1869	124.0	1.354	1	.739	1869
1870	196.5	2.014	1	.497	1870
1871	274.0	2.822	2	.709	1871
1872	345.5	3.621	4	1.105	1872
1873	401.0	4.318	4	.926	1873
1874	433.5	4.781	6	1.255	1874
1875	442.5	4.961	3	.605	1875
1876	433.5	4.993	2	.401	1876

(*Continued on next page.*)

TABLE XI.—(*Continued.*)

Year.	Average Number of Female Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Ratio of Actual to Probable.	Year.
1877	411.5	4.910	5	1.018	1877
1878	391.5	4.826	3	.622	1878
1879	386.0	4.914	4	.814	1879
1880	396.5	5.201	3	.577	1880
1881	425.0	5.655	6	1.061	1881
1882	463.5	6.235	5	.802	1882
1883	497.0	6.759	7	1.036	1883
1884	533.0	7.245	3	.414	1884
1885	589.5	8.047	6	.746	1885
Total,	6,849.0	83.770	67	.800	Total.

TABLES XII and XIII.

These Tables give in detail, the actual and probable deaths for male and female lives for each age. They are the basis from which a Mortality Table representing the Company's Experience has been prepared (see Table XVI).

TABLE XII.

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF *MALE LIVES* TERMINATED BY DEATH. FOR EACH AGE.

Age at Exposure.	Average Number of Male Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Age at Exposure.
11	.5	.004		11
12	1.	.008		12
13	2.	.015		13
14	3.5	.027		14
15	8.	.061		15
16	21.	.161	1	16
17	35.	.269		17
18	64.	.495		18
19	133.5	1.037	1	19
20	278.	2.170	1	20
21	516.5	4.057	4	21
22	840.	6.641	8	22
23	1210.5	9.633	6	23
24	1609.5	12.894	10	24
25	2007.	16.186	4	25
26	2431.5	19.768	7	26
27	2749.	22.534	15	27
28	3056.	25.255	11	28
29	3340.5	27.876	24	29
30	3560.	30.000	15	30
31	3782.	32.185	20	31
32	3908.	33.636	13	32
33	4026.	35.099	25	33
34	4052.5	35.788	18	34
35	4062.	36.339	15	35
36	4047.	36.783	31	36
37	4009.	37.019	22	37
38	3891.	36.607	27	38
39	3791.5	36.345	21	39
40	3668.5	35.929	24	40
41	3534.	35.368	19	41
42	3320.	34.037	26	42
43	3124.	32.855	21	43
44	2948.5	31.929	24	44
45	2786.5	31.106	20	45

(*Continued on next page.*)

TABLE XII.—(*Continued.*)

Age at Exposure.	Average Number of Male Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Age at Exposure.
46	2580.5	29.836	24	46
47	2457.	29.484	17	47
48	2317.5	28.990	8	48
49	2163.	28.348	23	49
50	1980.	27.286	23	50
51	1823.5	26.516	11	51
52	1702.	26.192	17	52
53	1603.5	26.190	25	53
54	1492.5	25.964	24	54
55	1355.5	25.173	18	55
56	1187.	23.603	22	56
57	1072.5	22.882	14	57
58	955.5	21.915	7	58
59	844.5	20.876	12	59
60	720.5	19.232	10	60
61	621.	17.934	11	61
62	553.5	17.320	7	62
63	471.5	16.004	15	63
64	398.5	14.694	13	64
65	312.	12.520	7	65
66	247.5	10.817	10	66
67	208.	9.911	9	67
68	172.5	8.970	9	68
69	134.	7.606	5	69
70	100.5	6.230	3	70
71	78.	5.278	5	71
72	59.5	4.387	4	72
73	43.5	3.488	1	73
74	38.	3.307	2	74
75	27.	2.548	5	75
76	13.	1.330		76
77	12.	1.333	1	77
78	9.	1.087		78
79	6.5	.856		79
80	5.	.722		80
81	3.	.476		81
82	2.	.349	1	82
Total,	104,588.0	1,229.770	796	Total.

TABLE XIII.

COMPARISON OF THE ACTUAL AND PROBABLE NUMBER OF *FEMALE LIVES* TERMINATED BY DEATH. FOR EACH AGE.

Age at Exposure.	Average Number of Female Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Age at Exposure.
13	.5	.004		13
14	1.5	.011		14
15	2.5	.019		15
16	3.5	.027		16
17	6.	.046		17
18	12.5	.097		18
19	19.5	.151		19
20	33.	.258		20
21	49.	.385	1	21
22	63.5	.502	1	22
23	79.	.629		23
24	94.	.753	2	24
25	103.5	.835	2	25
26	111.	.902	2	26
27	129.5	1.062		27
28	157.	1.297	2	28
29	179.	1.494		29
30	193.5	1.631	1	30
31	205.5	1.749	1	31
32	224.5	1.932	3	32
33	245.	2.136	1	33
34	253.5	2.239	1	34
35	260.	2.326	2	35
36	255.5	2.322	3	36
37	259.	2.372		37
38	253.	2.380	1	38
39	252.	2.416	2	39
40	252.5	2.473	5	40
41	232.	2.322	2	41
42	223.	2.286	1	42
43	215.5	2.266	1	43
44	215.	2.328		44
45	212.	2.366	5	45

(*Continued on next page.*)

TABLE XIII.—(*Continued.*)

Age at Exposure.	Average Number of Female Lives Exposed.	Probable Number of deaths by the American Experience Table.	Actual Number of deaths.	Age at Exposure.
46	197.	2.278	3	46
47	190.	2.280	1	47
48	173.5	2.170		48
49	170.	2.228	4	49
50	157.5	2.171	2	50
51	140.5	2.043		51
52	120.5	1.854		52
53	113.5	1.854	1	53
54	98.5	1.713	3	54
55	84.5	1.569	1	55
56	76.5	1.521	3	56
57	71.	1.515		57
58	66.5	1.525	1	58
59	61.	1.508		59
60	54.5	1.455	1	60
61	47.5	1.372		61
62	40.	1.252	1	62
63	35.	1.188	1	63
64	30.	1.106	1	64
65	29.	1.164	1	65
66	23.5	1.027	2	66
67	16.	.762		67
68	11.	.572		68
69	10.	.568		69
70	7.5	.465		70
71	6.	.406		71
72	3.	.221		72
73	3.	.240		73
74	3.	.261		74
75	3.5	.330		75
76	4.	.409	1	76
77	3.	.333	1	77
78	2.	.242		78
79	1.	.132		79
Total,	6849.0	83.770	67	Total.

TABLES XIV and XV.

In order to smooth out the irregularities which naturally occur in the experience for each age, the facts of Tables XII and XIII are now grouped in clusters of five ages each. These two tables are supplemented by Chart H, from which may be seen the relative line of Mortality for male and female lives as compared with the expected deaths by the American Table. No importance should be attached to the wide divergence of the actual and probable lines at the ends of the chart, for the reason given in explanation of Table VII and Chart F. The divergence may be large in percentage but at the same time small in fact, as it is here, and as is quite likely to be the case where there are so few exposures. It is interesting to note the fact that the mortality on female lives is higher than on male lives. This is in accordance with most observations on assured female lives, notwithstanding that statistics show a higher death rate for men than for women in the general population.

TABLE XIV.—(*See Chart H.*)

SHOWING THE ACTUAL AND PROBABLE NUMBER OF *MALE LIVES* TERMINATED BY DEATH. IN GROUPS OF FIVE AGES.

Ages.	Average Number of Male Lives Exposed.	Probable Number of Deaths by the American Experience Table.	Actual Number of Deaths.	Ratio of Actual to Probable.	Ages.
11 to 15	15.0	.114	0	0	11 to 15
16 to 20	531.5	4.131	3	.726	16 to 20
21 to 25	6,183.5	49.411	32	.648	21 to 25
26 to 30	15,137.0	125.433	72	.574	26 to 30
31 to 35	19,830.5	173.046	91	.526	31 to 35
36 to 40	19,407.0	182.683	125	.684	36 to 40
41 to 45	15,713.0	165.295	110	.665	41 to 45
46 to 50	11,498.0	143.944	95	.660	46 to 50
51 to 55	7,977.0	130.034	95	.731	51 to 55
56 to 60	4,780.0	108.509	65	.599	56 to 60
61 to 65	2,356.5	78.474	53	.675	61 to 65
66 to 70	862.5	43.535	36	.827	66 to 70
71 to 75	246.0	19.008	17	.890	71 to 75
76 to 82	50.5	6.153	2	.325	76 to 82
Total,	104,588.0	1,229.770	796	.647	Total.

TABLE XV.—(*See Chart H.*)

SHOWING THE ACTUAL AND PROBABLE NUMBER OF *FEMALE LIVES* TERMINATED BY DEATH. IN GROUPS OF FIVE AGES.

Ages.	Average Number of Female Lives Exposed	Probable Number of Deaths by the American Experience Table.	Actual Number of Deaths.	Ratio of Actual to Probable.	Ages.
11 to 15	4.5	.034	0	0	11 to 15
16 to 20	74.5	.579	0	0	16 to 20
21 to 25	389.0	3.103	6	1.934	21 to 25
26 to 30	770.0	6.386	5	.783	26 to 30
31 to 35	1,188.5	10.382	8	.771	31 to 35
36 to 40	1,272.0	11.983	11	.918	36 to 40
41 to 45	1,097.5	11.569	9	.778	41 to 45
46 to 50	888.0	11.127	10	.899	46 to 50
51 to 55	557.5	9.034	5	.553	51 to 55
56 to 60	329.5	7.524	5	.665	56 to 60
61 to 65	181.5	6.080	4	.658	61 to 65
66 to 70	68.0	3.394	2	.589	66 to 70
71 to 75	18.5	1.459	0	0	71 to 75
76 to 82	10.0	1.116	2	1.792	76 to 82
Total,	6,849.0	83.770	67	.800	Total.

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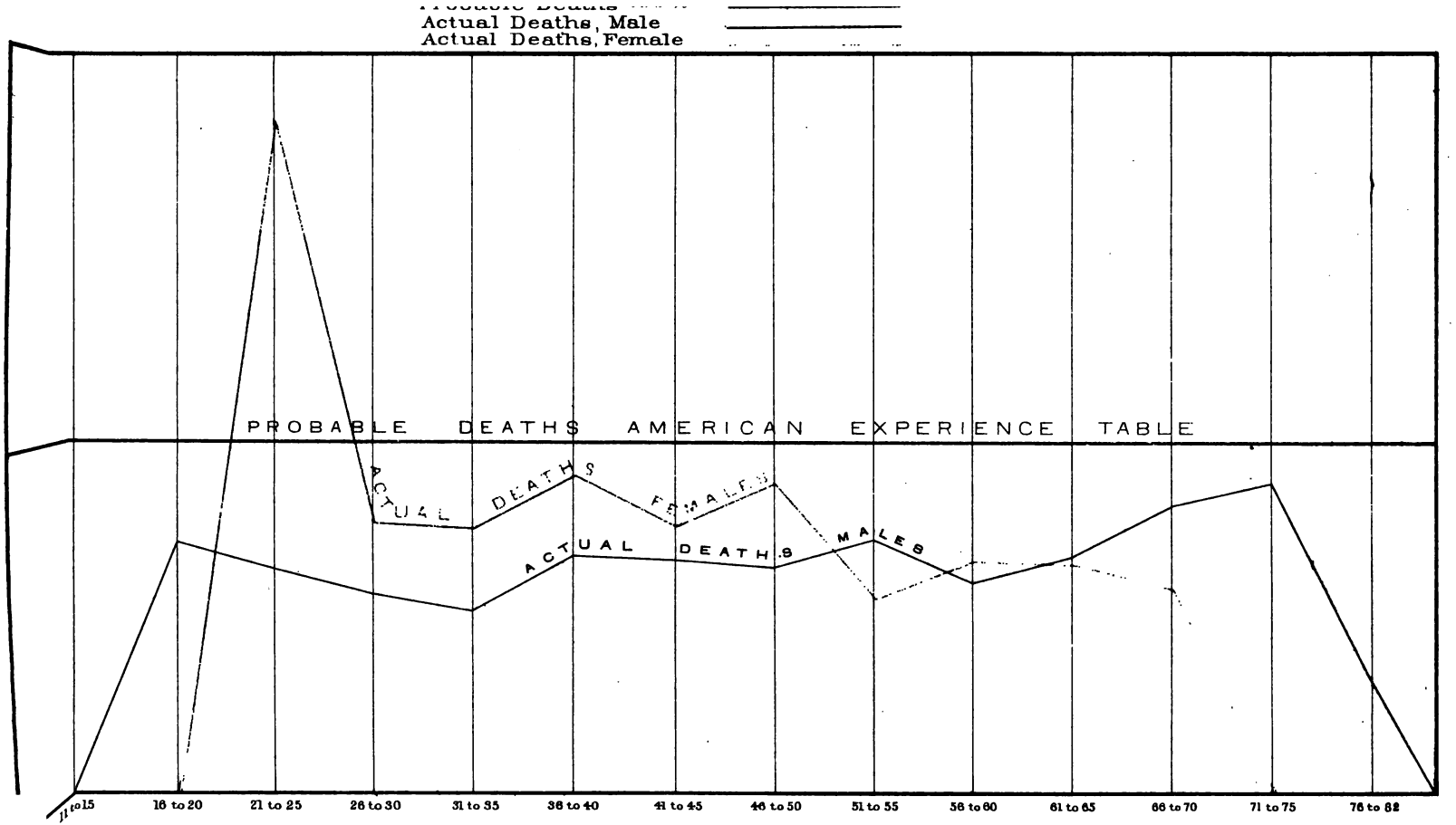
Actual Deaths, Male
Actual Deaths, Female
PROBABLE DEATHS AMERICAN EXPERIENCE TABLE
ACTUAL DEATHS FEMALES
ACTUAL DEATHS MALES
11 to 15
16 to 20
21 to 25
26 to 30
31 to 35
36 to 40
41 to 45
46 to 50
51 to 55
56 to 60
61 to 65
66 to 70
71 to 75
76 to 82

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TABLE XVI.

This is a mortality table constructed on the usual plan from the experience of the company on its male and female lives as given in detail for each age in Tables XII and XIII. As the company had so few exposures on lives younger than 15 and older than 75, the percentages of deaths for those ages were taken from the American Table in making up the unadjusted table. The unadjusted table was then graduated by the comparatively simple and very satisfactory method given by Mr. Woolhouse in the Journal of the Institute of Actuaries, Vol. 21, P. 45, etc., and the result obtained is set forth in this table.

TABLE XVI.

MORTALITY TABLE, FOUNDED UPON THE EXPERIENCE OF THE PROVIDENT LIFE AND TRUST COMPANY, FOR MALE AND FEMALE LIVES.

Age. x.	Living. lx.	Deaths. dx.	$\frac{dx}{lx}$	Age. x.
10	100000	579	.005790	10
11	99421	778	.007825	11
12	98643	931	.009438	12
13	97712	1039	.010633	13
14	96673	1101	.011389	14
15	95572	1119	.011708	15
16	94453	1091	.011551	16
17	93362	1017	.010893	17
18	92345	898	.009724	18
19	91447	566	.006189	19
20	90881	565	.006217	20
21	90316	554	.006131	21
22	88762	518	.005771	22
23	89244	503	.005636	23
24	88741	524	.005905	24
25	88217	454	.005146	25
26	87763	412	.004694	26
27	87351	399	.004568	27
28	86952	400	.004600	28
29	86552	414	.004783	29
30	86138	418	.004853	30
31	85720	430	.005016	31
32	85290	421	.004936	32
33	84869	415	.004890	33
34	84454	437	.005174	34
35	84017	455	.005416	35
36	83562	469	.005613	36
37	83093	493	.005933	37
38	82600	522	.006320	38
39	82078	511	.006226	39
40	81567	534	.006547	40
41	81033	554	.006852	41
42	80479	564	.007008	42
43	79915	567	.007095	43
44	79348	610	.007688	44
45	78738	605	.007684	45
46	78133	578	.007398	46
47	77555	594	.007659	47
48	76961	625	.008121	48
49	76336	606	.007939	49
50	75730	661	.008728	50

TABLE XVI.—(*Continued.*)

Age. x.	Living. lx.	Deaths. dx.	$\frac{dx}{lx}$	Age. x.
51	75069	790	.010524	51
52	74279	873	.011753	52
53	73406	927	.012628	53
54	72479	1039	.014335	54
55	71440	1064	.014894	55
56	70376	972	.013811	56
57	69404	889	.012809	57
58	68515	936	.013661	58
59	67579	866	.012814	59
60	66713	907	.013596	60
61	65806	1108	.016837	61
62	64698	1142	.017651	62
63	63556	1742	.027409	63
64	61814	1795	.029039	64
65	60019	2003	.033373	65
66	58016	2167	.037352	66
67	55849	2178	.038998	67
68	53671	2090	.038941	68
69	51581	2102	.040751	69
70	49479	2156	.043574	70
71	47323	2102	.044418	71
72	45221	2267	.050132	72
73	42954	2846	.066257	73
74	40108	3099	.077266	74
75	37009	3299	.089140	75
76	33710	3598	.106734	76
77	30112	3689	.122509	77
78	26423	3369	.127503	78
79	23054	3105	.134684	79
80	19949	2959	.148328	80
81	16990	2681	.157799	81
82	14309	2421	.169194	82
83	11888	2272	.191117	83
84	9616	2034	.211522	84
85	7582	1785	.235426	85
86	5797	1528	.263584	86
87	4269	1268	.297025	87
88	3001	1013	.337554	88
89	1988	769	.386821	89
90	1219	549	.450371	90
91	670	361	.538806	91
92	309	212	.686084	92
93	97	68	.701031	93
94	29	25	.862069	94
95	4	4	1.000000	95

TABLE XVII.

In this table is given a comparative exhibit of the Expectation of Life by the Provident and other Mortality Tables. It will be seen from it that if the present rate of mortality in The Provident Life and Trust Company is continued, the expectation of life of its members is much longer than by standard Mortality Tables.

TABLE XVII.

EXPECTATION OF LIFE BY DIFFERENT MORTALITY TABLES.

Age.	Provident, 1866-1885.	Friends', P. E. Chase, 1875.	American, 1858.	30 American Offices, Meech.	17 British Offices. Old "Actuaries."	20 British Offices, H. M. New "Actuaries."	Carlisle	Age.
10	52.20	48.80	48.72	49.99	48.36	50.29	48.82	10
11	51.50	47.97	48.08	49.32	47.68	49.54	48.04	11
12	50.90	47.12	47.45	48.64	47.01	48.73	47.27	12
13	50.39	46.27	46.80	47.95	46.33	47.89	46.51	13
14	49.92	45.43	46.16	47.26	45.64	47.03	45.75	14
15	49.49	44.60	45.50	46.57	44.96	46.16	45.00	15
16	49.07	43.79	44.85	45.88	44.27	45 29	44.27	16
17	48.64	43.00	44.19	45.18	43.58	44.44	43.57	17
18	48.17	42.24	43 53	44.48	42.88	43.61	42.87	18
19	47.64	41.50	42.87	43.78	42.19	42.82	42.17	19
20	46.93	40.78	42.20	43.07	41.49	42.06	41.46	20
21	46.22	40.09	41.53	42.36	40.79	41.33	40.75	21
22	45.51	39.43	40.85	41.65	40.09	40.60	40.04	22
23	44.77	38.78	40.17	40.93	39.39	39.88	39.31	23
24	44.02	38.15	39.49	40.21	38.68	39.15	38.59	24
25	43.28	37.53	38.81	39.49	37.98	38.41	37.86	25
26	42.50	36.92	38.12	38.77	37.27	37.66	37.14	26
27	41.70	36.31	37.43	38.04	36.56	36.91	36.41	27
28	40.88	35.71	36.73	37.31	35.86	36.16	35.69	28
29	40.07	35.11	36.03	36.58	35.15	35.42	35.00	29
30	39.26	34.51	35.33	35.85	34.43	34.68	34.34	30
31	38.45	33.92	34.63	35.12	33.72	33.95	33.68	31
32	37.64	33.32	33.92	34.38	33.01	33.21	33.03	32
33	36.83	32.72	33.21	33.65	32.30	32.48	32.36	33
34	36.00	32.12	32.50	32.91	31.58	31.75	31.68	34
35	35.19	31.52	31.78	32.17	30.87	31.02	31.00	35
36	34.38	30.92	31.07	31.43	30.15	30.29	30 32	36
37	33.57	30.32	30.35	30.70	29.44	29.56	29.64	37
38	32.77	29.71	29.62	29.96	28.72	28.84	28.96	38
39	31 97	29.10	28.90	29.22	28.00	28.12	28.28	39
40	31.17	28.49	28.18	28.48	27.28	27.40	27 61	40
41	30.37	27.87	27.45	27.75	26.56	26 68	26.97	41
42	29.58	27.25	26.92	27.01	25.84	25.96	26.34	42
43	28 78	26.62	26.00	26.28	25.12	25.23	25.71	43
44	27.98	25.99	25.27	25.55	24.40	24.51	25.09	44
45	27.20	25.36	24.54	24.82	23.69	23.79	24.46	45
46	26.40	24.71	23 81	24.09	22.97	23.08	23.82	46
47	25.60	24.06	23.08	23.38	22.27	22.38	23.17	47
48	24.79	23.40	22.36	22.66	21.56	21.68	22.50	48
49	23.99	22.74	21.63	21.95	20.87	20.99	21.81	49
50	23.13	22.08	20.91	21.24	20.18	20.31	21.11	50

TABLE XVII.—(*Continued.*)

Age.	Provident, 1866-1885.	Friends', P. E. Chase, 1875.	American, 1858	30 American Offices, Meech.	17 British Offices. Old "Actuaries."	20 British Offices. H. M. New "Actuaries."	Carlisle.	Age.
51	22.38	21 41	20 20	20.54	19.50	19.63	20.39	51
52	21 61	20.75	19.49	19.84	18.82	18.95	19.68	52
53	20.86	20.09	18 79	19.15	18.16	18.28	18.97	53
54	20.12	19.43	18.09	18.47	17.50	17.62	18.28	54
55	19.41	18.78	17 40	17.80	16.86	16.96	17.58	55
56	18.69	18.13	16.72	17.13	16.22	16.32	16.89	56
57	17.95	17.49	16.05	16 47	15.59	15.68	16.21	57
58	17.17	16.87	15.39	15.83	14.97	15.05	15.55	58
59	16.40	16.25	14.74	15.19	14.37	14.44	14.92	59
60	15.61	15.64	14.10	14.56	13.77	13 83	14.34	60
61	14.82	15.05	13.47	13.94	13.18	13.24	13.82	61
62	14.06	14.47	12.86	13.34	12.61	12.66	13.31	62
63	13.31	13.90	12 26	12.74	12.05	12.10	12.81	63
64	12 67	13.34	11.67	12.16	11.51	11.55	12 30	64
65	12.03	12.80	11.10	11.60	10.97	11.01	11.79	65
66	11.43	12.27	10.54	11.04	10 46	10.49	11.27	66
67	10.86	11.75	10.00	10.50	9.96	9.98	10.75	67
68	10.28	11.25	9.47	9.97	9.47	9.48	10.23	68
69	9.67	10.76	8.97	9.46	9.00	8.98	9.70	69
70	9.06	10.29	8.48	8.97	8.54	8.50	9.18	70
71	8.45	9.83	8.00	8 49	8.10	8.03	8.65	71
72	7.82	9.39	7.55	8.02	7 67	7.58	8.16	72
73	7.21	8.97	7.11	7.57	7.26	7.15	7 72	73
74	6.69	8.56	6.68	7.14	6.86	6.75	7.33	74
75	6.20	8.18	6.27	6.72	6.48	6.38	7.01	75
76	5.76	7.81	5.88	6.32	6.11	6.02	6.69	76
77	5.39	7.45	5.49	5.93	5.76	5.67	6.40	77
78	5.07	7.12	5.11	5.57	5.42	5.34	6.12	78
79	4.74	6.80	4.74	5.21	5.09	5.03	5.80	79
80	4.39	6.49	4.39	4.87	4.78	4.72	5.51	80
81	4.08	6.20	4.05	4.55	4.48	4.43	5.21	81
82	3.75	5.93	3.71	4.24	4.18	4.17	4.93	82
83	3.41	5.67	3.39	3 95	3.90	3 93	4.65	83
84	2 99	5.42	3 08	3 67	3.63	3.71	4.39	84
85	2.79	5 18	2.77	3.40	3.36	3.51	4.12	85
86	2.50	4.95	2.47	3.14	3.10	3.31	3.90	86
87	2.22	4.74	2 18	2.89	2 84	3.10	3.71	87
88	1.94	4.54	1.91	2.64	2.59	2.88	3 59	88
89	1.67	4.34	1.66	2.39	2.35	2.63	3.47	89
90	1.41	4.16	1.42	2.17	2.11	2.36	3.28	90
91	1.15	3.98	1.19	1.98	1.89	2 08	3.26	91
92	.92	3.81	.98	1.81	1.67	1.80	3 37	92
93	.84	3.65	.80	1.64	1.47	1.50	3.48	93
94	.64	3.49	.64	1.49	1.28	1.20	3.53	94
95	.50	3.34	.50	1.34	1.12	.93	3 53	95

TABLE XVIII.

If in any Mortality Table the number dying at any age is divided by the number living at that age the result gives the percentage of death by that table for that age. It is generally represented by the expression $\frac{d_x}{l_x}$. Taking the $\frac{d_x}{l_x}$ for each age by the American Table as shown in Table XVIII for a standard, we have placed side by side the percentages which the probability of death $(\frac{d_x}{l_x})$ by the Provident and other Mortality Tables bear to it. The result is given in Chart J, in such a way as to show at a glance the comparative rate of Mortality by the several tables.

TABLE XVIII.—(*See Chart J.*)

PERCENTAGE OF MORTALITY $\left(\frac{dx}{lx}\right)$ BY THE AMERICAN TABLE, AND THE RATIO WHICH THE PERCENTAGES OF MORTALITY BY OTHER TABLES BEAR TO IT.

Age.	$\frac{dx}{lx}$ by American Table.	Ratio of $\frac{dx}{lx}$ to that of the American Table.					Age.
		Provident, 1866 to 1885.	30 American Offices, Meech.	17 British Offices, Old "Actuaries."	20 British Offices, H. M., New "Actuaries."	Carlisle.	
25	.008065	.638	.872	.963	.822	.907	25
26	.008130	.577	.875	.970	.822	.906	26
27	.008197	.557	.877	.977	.842	.948	27
28	.008264	.557	.880	.985	.868	1.052	28
29	.008345	.573	.885	.992	.896	1.178	29
30	.008427	.576	.888	1.000	.916	1.199	30
31	.008510	.589	.893	1.008	.930	1.199	31
32	.008607	.573	.898	1.016	.942	1.177	32
33	.008718	.562	.903	1.023	.950	1.153	33
34	.008831	.586	.909	1.030	.963	1.149	34
35	.008946	.605	.914	1.038	.981	1.146	35
36	.009089	.618	.923	1.044	1.002	1.161	36
37	.009234	.643	.930	1.049	1.025	1.176	37
38	.009408	.672	.938	1.051	1.040	1.187	38
39	.009586	.649	.947	1.057	1.052	1.239	39
40	.009794	.668	.956	1.058	1.052	1.328	40
41	.010008	.685	.964	1.060	1.048	1.376	41
42	.010252	.684	.975	1.063	1.047	1.402	42
43	.010517	.675	.984	1.070	1.058	1.387	43
44	.010829	.710	.994	1.080	1.067	1.367	44
45	.011163	.688	1.004	1.094	1.092	1.327	45
46	.011562	.640	1.011	1.110	1.119	1.281	46
47	.012000	.638	1.019	1.126	1.142	1.217	47
48	.012509	.649	1.024	1.140	1.154	1.114	48
49	.013106	.606	1.027	1.149	1.161	1.044	49
50	.013781	.633	1.028	1.157	1.157	.974	50

TABLE XVIII.—(*Continued.*)

Age.	$\frac{dx}{lx}$ by American Table.	Ratio of $\frac{dx}{lx}$ to that of the American Table.					Age.
		Provident, 1866 to 1885.	30 American Offices, Meech.	17 British Offices, Old "Actuaries."	20 British Offices, H. M. New "Actuaries."	Carlisle.	
51	.014541	.724	1.028	1.162	1.146	.983	51
52	.015389	.764	1.028	1.166	1.140	.988	52
53	.016333	.773	1.026	1.169	1.139	.989	53
54	.017396	.824	1.022	1.168	1.134	.971	54
55	.018571	.802	1.019	1.167	1.133	.965	55
56	.019885	.695	1.014	1.163	1.129	.955	56
57	.021335	.600	1.011	1.157	1.124	.979	57
58	.022936	.596	1.005	1.150	1.117	1.055	58
59	.024720	.518	.999	1.143	1.114	1.144	59
60	.026693	.509	.994	1.136	1.112	1.255	60
61	.028880	.583	.988	1.129	1.109	1.239	61
62	.031292	.564	.981	1.122	1.107	1.195	62
63	.033943	.807	.975	1.115	1.104	1.127	63
64	.036873	.788	.969	1.107	1.098	1.079	64
65	.040129	.832	.963	1.099	1.082	1.024	65
66	.043707	.855	.956	1.089	1.065	.972	66
67	.047647	.818	.950	1.080	1.047	.932	67
68	.052002	.749	.943	1.070	1.024	.893	68
69	.056762	.718	.938	1.059	1.010	.865	69
70	.061993	.703	.932	1.047	1.003	.833	70
71	.067665	.656	.928	1.037	1.006	.870	71
72	.073733	.680	.925	1.028	1.016	.924	72
73	.080178	.826	.925	1.021	1.033	.974	73
74	.087028	.888	.927	1.017	1.048	1.036	74
75	.094371	.945	.930	1.013	1.042	1.012	75

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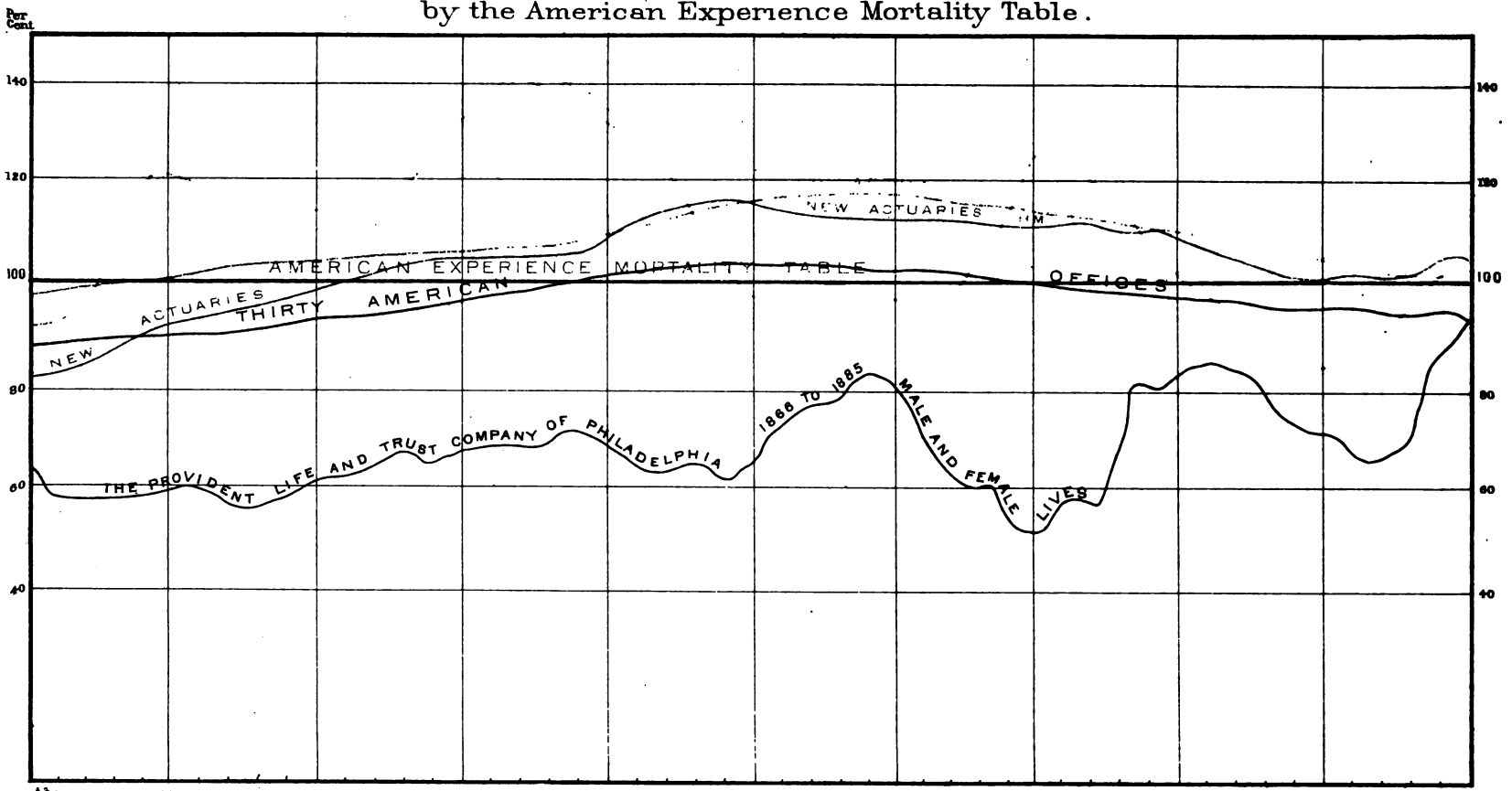
CHART J. (See Table XVIII.)

Showing the Relative percentages of Mortality by Different Tables as compared with that by the American Experience Mortality Table.



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We give below, for comparison, the result of some of the observations made by other companies as well as our own:

	Ratio of Actual to Probable Loss by the American Table.	Ratio of Actual to Probable Loss by the Combined Ex. or Old Actuaries' Table.
Mutual Life of N. Y. 1843–1873.		
On Lives,	.799	
Connecticut Mutual. 1846–1878.		
On Policies,	.856	
On Amount,	.879	
On Lives,	.853	
On Male Lives,	.846	.778
On Female Lives,	.945	
Mutual Benefit. 1845–1879.		
On Lives,	.848	
On Amount,	.894	
Michigan Mutual. 1867–1881.		
On Policies and Lives,	.763	.709
John Hancock. 1863–1883.		
On Lives,		.732
On Female Lives,		.823
On Amount,		.843
Penn Mutual. 1874–1885.		
On Amount,		.785
Provident Life and Trust Company. 1866–1885.		
On Lives,	.657	
On Male Lives,	.647	
On Female Lives,	.800	
On Policies,	.666	.619
On Amount,	.687	.637

It is not likely that any one cause can be assigned which will fully account for the unusually low rate of mortality shown by the experience of THE PROVIDENT LIFE AND TRUST COMPANY OF PHILADELPHIA.

There must however be some satisfactory explanation for facts borne out so uniformly year after year.

In the early history of the Company it was supposed that so large a number of insurances upon members of the Society of Friends would have a favorable effect upon the average vitality of the Company, on account of their well known reputation for longevity; but as the Company has increased in membership the proportion of Friends among the insured has become small, and the experience of the Company has shown no correspondingly increasing rate of mortality; so that while the insurances upon the lives of Friends may have contributed somewhat toward the favorable result attained, we cannot consider it as an important factor.

The large proportion of new insurances written by this Company each year, as compared with the amount already in force, would naturally have a favorable effect upon the mortality experience; for all companies of good standing will show a rate of mortality much below any standard general expectation, during the first three or four years of the existence of the policies; but that this fact does not give a satisfactory explanation for the exceptionally low death rate in the PROVIDENT is shown by throwing out of this Company's experience the years of exposure 0, 1 and 2 (see Table VII), that is those especially favored by recent medical examinations, and the remaining years will still show a death rate of only $75\frac{7}{10}\%$ of the American Table, which is below the rate

that other companies (which have published statistics of their mortality) show for their *whole* experience, including the most favorable years of exposure.

After a careful observation of the tables presented herewith, we are of opinion that the three principal causes which have contributed to such a favorable experience in this Company, are those which have been alluded to several times in our Annual Reports in commenting upon the continued exemption of the Company from a high rate of mortality:

First: The character of the agents who secure the business, and their conscientious devotion to the best interests of the Company whose reputation they have done so much to establish.

Second: The ability and care of our medical examiners, and especially of the Chief Medical Examiner, who passes upon all cases before they are accepted by the Company.

Third: The limitation of our business to the more healthful sections of the country.